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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/651,058	08/30/2000	Shoutarou Yoda	107156-00019	1169

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EXAMINER

NOLAN, DANIEL A

ART UNIT PAPER NUMBER

2654

DATE MAILED: 06/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

901

**Office Action Summary**

Application No.

09/651,058

Applicant(s)

YODA, SHOUTAROU

Examiner

Daniel A. Nolan

Art Unit

2654

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 August 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.                      6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/651,058, filed on 30 August 2000.

### ***Drawings***

2. The drawings are objected to because there is no *table 6g in figure 8* (see application page 23 line 15).
3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they reference sign 210 (figure 10) is not mentioned in the description.

### ***Specification***

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Control using Multiple Speech Receptors in an In-Vehicle Speech Recognition System".

7. The disclosure is objected to because:

- There is no *table 6g in figure 8* (see application page 23 line 15).
- The word "large" should be "loud" (page 2 lines 20, 24).

Appropriate correction is required.

### ***Claim Objections***

8. Claims 4 and 5 are objected to because of the following informalities:

- The language of the claims is extremely difficult and is subject to interpretation in many cases. The Applicant is asked to revisit the

language of the claims with the objective of improving clarity and avoiding future errors of misunderstanding. Examples follow.

- Claim 2 is subject to interpretation. The Examiner is proceeding with the understanding that the claim would read as if *determined* would read *determined as being or categorized*.
- For clarity and to avoid future mistakes of interpretation, a colon should follow the word “wherein” (line 1 claim 4) and subsequent features should be indented.
- Claim 5 is not expressed as a complete sentence and is subject to interpretation. The Examiner is proceeding with the understanding that the claim should read to the effect that the words “*treats those of*” (line 2) should read “comprises: treating” with “treating” starting an appropriately indented new line.
- Claim 6 is subject to interpretation. The Examiner is proceeding with the understanding that the claim should read to the effect that “*wherein the meaning of other speech signals than said speech signal suitable for speech recognition, is determined to be that those speech signals whose average S/N value and average voice power become minimum and that such signals will be [is] treated as noise by said determination means.*”

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

#### **Everhart**

10. Claims 1, 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everhart (U.S. Patent 6,230,138).

11. Regarding claims 1, 7 and 13; Everhart discloses:

- *Speech recognition having a plurality of voice pickup means for picking up uttered voices (42-44, figure 1) and*
- *Speech recognition means for performing speech recognition based on speech signal determined by said determination means (90-92, figure 5).*
- With regard to the feature of determining whether the speech signal is suitable for processing, the process of isolating noise from speech is a well-known part of a speech recognition engine making it obvious for a person of ordinary skill in the art of speech signal processing to include *determination means for determining a speech signal suitable for speech*

*recognition from speech signals output from said plurality of voice pickup means* to avoid errors produced by mis-recognizing noise as voice.

### **Everhart & Fedele**

12. Claims 2, 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everhart in view of Fedele (U.S. Patent 4,627,091).

13. Regarding claim 2 as understood by the Examiner and claims 8 and 14; the claims are set forth with the same limits as claims 1, 7 and 13, respectively.

- While Everhart processes *speech signals output from said plurality of voice pickup means* (ibid.) for which *speech discrimination* is requisite (78 in figure 4), he does not disclose any specific component dedicated to that function for the feature of processing.
- Fedele teaches the well-known feature that a signal with a *speech level equal to or higher than a predetermined speech level* (threshold or trigger, column 1 lines 27-32 & column 3 line 33) *and continues over a predetermined period of time is determined as said speech signal suitable for speech recognition* (illustrated by figure 1).
- It would have been obvious for Everhart to employ the well-known criteria disclosed by Fedele to limit processing to actual voice and therefore avoid excessive futile attempts to resolve mis-recognized commands triggered from background noise anomalies.

### Everhart & Bowen

14. Claims 3, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everhart in view of Bowen (U.S. Patent 5,561,737).

15. Regarding claims 3, 9 and 15; the claims are set forth with the same limits as claims 1, 7 and 13, respectively.

- While Everhart processes *speech signals output from said plurality of voice pickup means* (ibid.) for which *speech discrimination* is requisite (78 in figure 4), he does not disclose any specific component dedicated to that function for the feature of processing.
- Bowen teaches *acquiring an average S/N value and average voice power of each of said speech signals output* (601 in figure 6 detailed in column 9 lines 5-50) then proceeds with *selection logic circuit* (140 figure 1) to *determine that of said speech signal whose average S/N value and average voice power are greater than respective predetermined threshold values as said speech signal suitable for speech recognition* (in claim 7).
- It would have been obvious for Everhart to apply the mechanism of Bowen in order to substitute a manual switch for the equivalent of well-known voice application that was applied and has been commercially available for a wide variety of ordinary consumer household products to a person of ordinary skill since well before the time of the invention.



**Everhart, Fedele & Bowen**

16. Claims 4-6, 10-12 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everhart in view of Fedele and further in view of Bowen.

17. Regarding claims 4, 10 and 16 as understood by the Examiner; the claims are set forth with the same limits as claims 3, 9 and 15, respectively.

- While Everhart discloses the multiple configuration of the immediate application and Fedele addresses the mechanism of detecting speech, neither discloses the mechanism of selecting an input for processing.
- *Bowen teaches precisely such selection (column 1 lines 45-60),*
- *which would have made it obvious for Everhart to incorporate the selection logic of Bowen to base processing by order of dominance so as to determine an order of processing by determining a candidate order of those speech signals whose average S/N values and average voice powers are greater than said respective predetermined threshold values and which are candidates for said speech signal suitable for speech recognition, in accordance with said average S/N values and average voice powers as taught by Fedele (ibid.) and by then sequentially executing speech recognition on said candidates in accordance with said candidate order from a highest candidate to a lower one with Bowen's "voting" to prioritize processing on some basis, such as urgency, proximity and likelihood of understanding, all of which would be indicated by examination of signal quality.*

18. With regard to claims 5, 11 and 17 as understood by the Examiner; the claims are set forth with the same limits as claims 1-4, 7-19 and 13-16, respectively. All the prior art of record contain a discrimination function that *treats those of said speech signals which are other than said speech signal suitable for speech recognition as noise signals*, as:

- Everhart (column 5 lines 40-54)
- Bowen (column 8 line 66 to column 9 line 1)
- Fedele would simply disregard non-speech (column 3 lines 28-37) with the well-known shared objective of all references being to differentiate between commands and noise.

19. With regard to claims 6, 12 and 18 as understood by the Examiner; the claims are set forth with the same limits as claims 1-4, 7-19 and 13-16, respectively. The feature defining that the unsuitability *of other speech signals (than said speech signal suitable for speech recognition, that speech signal) whose average S/N value and average voice power become minimum is treated as a noise signal by said determination means* is well-known in the art of speech signal processing as taught by Fedele (column 2 lines 13-18) which would have made it obvious to Everhart to incorporate the teachings of Fedele at the time of the invention to identify and process levels as noise so as to provide continuity for complex command sequences.

## ***Conclusion***

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Everhart et al (U.S. Patent 6,240,347) employs the "command recognition" form of voice control separately, actuated with individual microphone controls.
- Momii et al (U.S. Patent 6,052,665) teaches recognition of signals as functions of signal time duration and signal (figure 6).
- Bowen et al (U.S. Patent 5,625,697) further improves on the cited prior art of record providing refinements on selection, detection and sensitivity.
- Lee et al (U.S. Patent 4,449,238) determines dominant microphones in an array.
- Julstrom (U.S. Patent 5,297,210) determines dominant microphones in an array.
- Hunt (U.S. Patent 5,319,736) detects speech from noise.
- Peters et al (U.S. Patent 6,134,524) isolate speech from noise.
- Fujimoto et al (U.S. Patent 5,214,707) controls apparatus with speech.
- Haruta (Japanese Patent 08-328579) recognizes one from a number of microphones.
- Furukawa (Japanese Patent 02-077799) bases speech determination on the S/N ratio.

- Matsushita (Japanese Patent 04-163496) shares configuration with the immediate application and prior art of record having vehicular speech controls originating from multiple points of input.

21. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel A. Nolan at telephone (703) 305-1368 whose normal business hours are Mon, Tue, Thu & Fri, from 7 AM to 5 PM.

If attempts to contact the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached at (703) 305-4379.

The fax phone number for Technology Center 2600 is (703) 872-9314.

Label informal and draft communications as "DRAFT" or "PROPOSED", & designate formal communications as "EXPEDITED PROCEDURE".

Formal response to this action may be faxed according to the above instructions,

or mailed to: Commissioner of Patents and Trademarks  
Washington, D.C. 20231

or hand-delivered to: Crystal Park 2,  
2121 Crystal Drive, Arlington, VA,  
Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 Customer Service Office at telephone number (703) 306-0377.

Daniel A. Nolan  
Examiner  
Art Unit 2654

dan

June 10, 2002

*Vijay B. Chauhan*  
Primary Examiner  
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6/16/02